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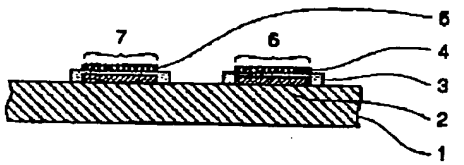
(54) **TRANSPARENT CONDUCTIVE PRINTED MATTER**

(57) Abstract:

PURPOSE: To manufacture a transparent conductive printed matter having no deterioration and no printing irregularity due to a conductive printing pattern at a low cost by forming a conductive section laminated with a printing ink layer such as a pattern, a barrier layer, and a transparent conductive ink layer on a printing base material.

CONSTITUTION: Characters and a pattern are printed in four colors by an offset sheet-by-sheet printing machine to provide a print layer 2 on the gloss coat paper 1 having surface smoothness serving as an insulating base material. Photogravure is applied to cover the print layer 2 with transparent primer ink to provide a barrier layer 3. Solid printing is finally applied at the prescribed positions by a photogravure sheet-by-sheet printing machine with transparent conductive ink and transparent nonconductive ink respectively to provide a transparent conductive ink layer 4 and a transparent nonconductive ink layer 5. The deterioration due to a conductive printing pattern at a conductive section is prevented, beautiful conductive section/nonconductive section having no irregularity on the surface can be provided at any place of the pattern, and a stable transparent conductive printed matter can be manufactured at a low cost.



5

ラビアインキに仕立てて導電部の印刷を行った。すなわち、導電フィラーとして5酸化アンチモンと酸化錫の混合物24．5%，バインダーとしてポリエステル系樹脂10．5%，溶剤としてトルエンとメチルイソブチルケトンをそれぞれ50%づつ混合した溶剤65%である。導電フィラーにはこの他金、銀、銅、カーボン等の微粒子が、バインダー樹脂には、アクリル系、エポキシ系、フェノール系、塩化ビニル系等の樹脂が広く使用できる。溶剤も他に芳香族系、エステル系、アルコール系等のものがバインダーとの関連において選択できる。透明非導電性インキは非導電フィラーとして，有機系顔料、フタロシアニンブルー、カーミン6B等を含有するもので、印刷の仕上がりが導電部と全く区別が付かないように仕上げる必要がある。用途によっては、前記の透明導電性と透明非導電性インキをデザイン的に最もマッチする色に着色させると良い。たとえばフタロシアニンブルーをインキ総量に対し0～2%の範囲で添加すれば良い。

【0012】

【発明の効果】本発明により，導電部における導電性の下刷り図柄による劣化を防止し、表面にムラのない美し

6

い導電部／非導電部を図柄の任意な場所に設けることができ、あらゆる図柄に対して、安定した透明導電性印刷物を低コストで得ることができる。また本発明により○×式の学習カード以外にも、漢字の書き順教材、教育玩具、等に透明導電性印刷物を利用し易くなった。

【図面の簡単な説明】

【図1】導電部／非導電部の断面図（バリアー層が印刷パターンに対応する場合）

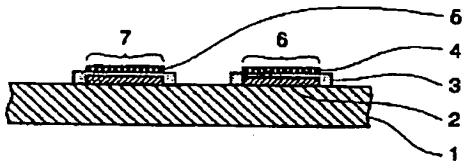
【図2】導電部／非導電部の断面図（バリアー層が全面に設けられた場合）

【図3】導電部のある頁に対向する頁の印刷断面図

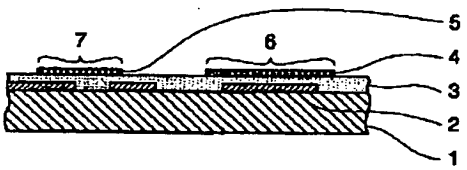
【符号の説明】

1　印刷基材
2　文字、図柄印刷層
3　バリアー層
4　透明導電性インキ層
5　透明非導電性インキ層
6　導電部
7　非導電部
8　導電部対向範囲

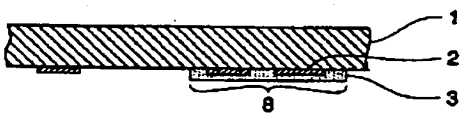
【図1】



【図2】



【図3】



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Transparent c nductive printed matter - comprises conductive part formed by lamination of lett r or drawing printed ink layer, barrier layer and transparent conductive ink layer on printing base

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The transparent conductive printed matter comprises conductive part formed by laminating letter or drawing printed ink layer, the barrier layer, and the transparent conductive ink layer, on a printing base material, in order from the base material side.

Pref. in the printed matter having many pages in which the conductive parts are formed on requires pages the letter or drawing printed ink layer on the page facing to the page having the conductive part can be covered with the barrier layer.

USE/ADVANTAGE - The transparent conductive printed matter is used for the card for leaning, educational material for drill, or educational toy. Conductive part/non-conductive part, having uniform and pretty surface, can be formed on optional place on the printed matter. Stable transparent conductive printed matter can be cost-savingly obtd. fro optional printing design.

In an example, letter and drawing were printed by the offset printing on the base material of gloss coat paper (1) to form the printed layer (2). Then, using transparent primer ink, barrier layer (3) was formed by the gravure printing so as to cover the printed layer (2). Then, transparent conductive ink layer (4) and transparent non-conductive ink layer (5) were formed. Mottling on the surface of the printed matter was avoided and pretty lustre surface was obtd. (4pp Dwg.No.1/3)

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